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THE PLANT DISEASE BULLETIN

Issued By

The Plant Disease Survey

Number 1, August 15,

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BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

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INTRODUCTORY STATEMENT.

The Plant Disease Survey was organized as an office of the Bureau of Plant Industry, United States Department of Agriculture, on July 1, 1917, with G. R. Lyman in charge, assisted by R. J. Haskell, formerly of the New York State College of Agriculture. The principal objects of the Survey broadly stated are: first, to collect information on plant diseases in the United States covering such topics as prevalence, geographical distribution, severity, etc., and, second, to make this information immediately available to all persons interested, especially to those concerned with disease control.

In collecting data it is proposed to utilize all available sources, both public and private, and to interest in this project all plant pathologists and all others who are in a position to report reliable information. We have already appointed one or more collaborators in each state, usually the plant pathologists at the Agricultural Experiment Stations. These collaborators will act as the leaders of the Survey work in their respective states, and correspondence relating to this work may be addressed to them or to the central office in Washington. A list of the collaborators acting as Survey leaders in their states is given below. Special field scouts will also be employed by this Office occasionally, to collect data on diseases of especial importance.

The Plant Disease Bulletin will be issued at frequent intervals during the crop season, and will contain summaries of all important data reported to this Office, thus making the information immediately available to all those interested in plant diseases and plant disease control. As the facilities for obtaining reliable and timely information are developed and extended the Bulletin will become of greater and greater value. It will be sent gratis to all our collaborators and correspondents and to others particularly interested in disease control work, who may request it.

PLANT DISEASE SURVEY COLLABORATORS.

Alabama: Dr. G. L. Peltier,
Agricultural Experiment Station, Auburn.

Arizona: Prof. J. J. Thornber,
Agricultural Experiment Station, Tucson.

Arkansas: Dr. J. A. Elliott,
Agricultural Experiment Station, Fayetteville.
Prof. J. Lee Hewitt,
State Plant Board, Fayetteville.

California: Dr. J. T. Barrett,
Agricultural Experiment Station, Riverside.
Prof. R. E. Smith,
Agricultural Experiment Station, Berkeley.

Colorado: Prof. H. E. Vasey,
Agricultural Experiment Station, Fort Collins.

Connecticut: Dr. G. P. Clinton,
Agricultural Experiment Station, New Haven.

Delaware: Dr. Thomas F. Manns,
Agricultural Experiment Station, Newark.

Florida: Prof. H. E. Stevens,
Agricultural Experiment Station, Gainesville.

Georgia: Dr. B. B. Higgins,
Agricultural Experiment Station, Experiment.

Idaho: Miss M. A. Willis,
Agricultural Experiment Station, Moscow.

Indiana: Prof. J. C. Arthur,
Agricultural Experiment Station, Lafayette.
Prof. H. S. Jackson,
Agricultural Experiment Station, Lafayette.

Iowa: Dr. L. H. Pammel,
Agricultural Experiment Station, Ames.

Kansas: Prof. L. E. Melchers,
Agricultural Experiment Station, Manhattan.

Kentucky: Prof. A. H. Gilbert,
State College of Agriculture, Lexington.

Louisiana: Dr. C. W. Edgerton,
Agricultural Experiment Station, Baton Rouge.

Maine: Dr. W. J. Morse,
Agricultural Experiment Station, Orono.

Maryland: Prof. C. E. Temple,
Agricultural Experiment Station, College Park.

Massachusetts: Prof. A. Vincent Osmun,
Agricultural Experiment Station, Amherst,

Michigan: Dr. Ernst A. Bessey,
Agricultural Experiment Station, East Lansing.

Minnesota: Dr. E. M. Freeman,
Agricultural Experiment Station, University Farm,
St. Paul.

Mississippi: Prof. J. M. Beal,
Agricultural Experiment Station, Agricultural College.

Missouri: Dr. George M. Reed,
Agricultural Experiment Station, Columbia.

Montana: Prof. D. B. Swingle,
Agricultural Experiment Station, Bozeman.

Nebraska: Dr. E. Mead Wilcox,
Agricultural Experiment Station, Lincoln.

Nevada: Dr. P. A. Lehenbauer,
Agricultural Experiment Station, Reno.

New Hampshire: Dr. O. R. Butler,
Agricultural Experiment Station, Durham.

New Jersey: Dr. Mel T. Cook,
Agricultural Experiment Station, New Brunswick.

New Mexico: Prof. F. C. Werkenthin,
Agricultural Experiment Station, State College.

New York: Prof. H. H. Whetzel,
Agricultural Experiment Station, Ithaca.

North Carolina: Dr. F. A. Wolf,
Agricultural Experiment Station, West Raleigh.

North Dakota: Prof. H. L. Bolley,
Agricultural Experiment Station, Agricultural College.

Ohio: Prof. A. D. Selby,
Agricultural Experiment Station, Wooster.

Oklahoma: Prof. C. D. Kearn,
Agricultural Experiment Station, Stillwater.

Oregon: Prof. H. P. Barss,
Agricultural Experiment Station, Corvallis.

Pennsylvania: Prof. C. R. Orton,
Agricultural Experiment Station, State College.

Porto Rico: Prof. J. A. Stevenson,
Insular Experiment Station, Rio Piedras.

South Carolina: Prof. H. W. Barre,
Agricultural Experiment Station, Clemson College.

South Dakota: Prof. C. W. Michel,
Agricultural Experiment Station, Brookings.

Tennessee: Prof. S. H. Ersary,
Agricultural Experiment Station, Knoxville.

Texas: Dr. F. H. Blodgett,
Texas Extension Service, College Station.
Dr. J. J. Taubenhaus,
Agricultural Experiment Station, College Station.

Utah: Dr. G. R. Hill, Jr.,
Agricultural Experiment Station, Logan.

Vermont: Dr. B. F. Lutman,
Agricultural Experiment Station, Burlington.

Virginia: Dr. F. D. Fromme,
Agricultural Experiment Station, Blacksburg.

Washington: Dr. F. D. Heald,
Agricultural Experiment Station, Pullman.

West Virginia: Prof. N. J. Giddings,
Agricultural Experiment Station, Morgantown.
Dr. J. L. Sheldon,
Agricultural Experiment Station, Morgantown.

Wisconsin: Dr. L. R. Jones,
Agricultural Experiment Station, Madison.

Wyoming: Dr. Aven Nelson.
Agricultural Experiment Station, Laramie.

REPORTS

On August 1, 1917, a request was sent to all collaborators asking them to make a general report on plant disease conditions in their respective states and in addition to give specific information regarding certain diseases of potatoes, beans, winter wheat, rye, barley and corn. Special report blanks were provided for recording data on diseases of these crops. The questionaires on potato and bean diseases were sent to all states and those on diseases of cereals went only to states where the cereals are grown extensively.

SPECIAL REPORTS

BEANS

Anthracnose caused by Colletotrichum lindemuthianum.

Reports on bean diseases have been received from twenty-six states:

Alabama: First appearance in June at Auburn. Very prevalent, due to excessive rains during July. Most of the infection has appeared on the leaves. Bush varieties are most affected, pole varieties least.

Delaware: First appearance June 1 everywhere in the north central part of state. Disease mostly distributed in the northern part at the present time. Wax beans are most affected and green pole varieties, such as Kentucky Wonder and Limas, least affected.

Florida: The disease is prevalent in about the same amounts as last year. Definite data as to its occurrence this season has been secured from eight counties.

Louisiana: The disease is not abundant this year on account of the very hot dry weather during the growing season, in spite of the fact that much of the seed planted was quite badly spotted.

Maryland: Disease first observed early in April at College Park. More prevalent this year than usual. In some places it is quite severe. The unusually wet spring and summer has been largely responsible for the great loss this season. All varieties are affected.

Massachusetts: The disease first noticed on seedlings practically everywhere the crop is grown. At the present time it is generally distributed throughout the state but comparatively little damage has been done up to date. Since the development started the weather has been generally

dry and this seems to have checked the development of anthracnose to a large degree. Wax beans are most affected.

Michigan: Disease prevalent everywhere and in much greater quantities than last year. The wet weather with rains every two or three days have augmented the disease.

Minnesota: Disease first noted July 19 in Hennepin County. Anthracnose is not very common nor serious in the state this year. The spring was damp but the latter part of July has been dry.

New Hampshire: Disease first noted July 9 from Grafton County. Disease not serious owing to the dry weather of July.

New Jersey: There is less complaint than usual from growers in regard to anthracnose.

New Mexico: Disease first noted July 25 at Clayton, New Mexico. More prevalent than last year.

New York: First report of the disease June 25 at Saratoga Springs. Disease is very serious and it is estimated from reports sent in that about 31% of the crop has been injured. Nearly all of the specimens received showed leaf or pod infection. The wet cool spring followed by wet and warm summer appear to have been conducive to its development.

Pennsylvania: First noted early in July. Prevalent, at least in central part of the state. Not as severe as last year at this time.

Tennessee: Disease is general over the state, pod infection most common.

Vermont: Disease first noted June 17 in the vicinity of Burlington. It is common but not destructive as yet. Stem infection most frequently reported. Weather was favorable to its development up to June 15 but since that time it has changed and become unfavorable. Garden beans of the wax types, "navy" and "yellow eyes" are most affected.

West Virginia: Disease first noted July 25 at Morgantown. It appears to be unusually prevalent this season.

Bacterial Blight caused by Pseudomonas phaseoli.

Alabama: Disease first noted in May as occurring at Auburn. Scattered reports have been received as to its occurrence in other parts of the state.

Delaware: First noticed June 1 at Newark. Is very common on bush beans, especially the wax varieties. Pole and Limas are least affected.

Florida: Disease about the same as last year. Definite reports from three counties. Most injury has been to the foliage.

Louisiana: First noticed in April at many places in the state. Everywhere common but in about the same amount as last year. Much of the seed is infected. All varieties are reported as being diseased. Very hot dry weather did not seem to check the trouble but probably made it worse.

Maryland: First noted in April at Riverdale. More prevalent than last year. Many plants were killed in three weeks after they came up. 8% injury in infected fields. Golden Wax and Burpee's Stringless Greenpod most affected.

Massachusetts: First reported at Amherst and is now generally distributed throughout the state. Much poor seed was planted owing to the shortage. The injury up to the present time has been slight.

Michigan: Disease prevalent everywhere throughout the state. First appeared on seedlings. Seed for many fields was clean-picked but probably every lot of seed planted carried the organism. The injury thus far has been a killing of the lower leaves.

Minnesota: Disease first noticed June 12 in Hennepin County. Chief injury so far reported is a killing of the seedlings as they came up. Some fields were entirely destroyed in this way. Definite reports are available from only two counties.

New Hampshire: Disease first noticed July 9 in Grafton County but not severe.

New Jersey: Disease not abundant but more so than last year. Most of the injury has been to the seedlings.

New York: First reported July 15 at Spencer, probably in all bean growing sections. It is estimated from figures sent in by crop disease reporters that 2.2% of the beans have been injured.

Tennessee: Disease first reported in June from Jefferson City where it was occurring on leaves and pods. No estimate is made as to the amount of damage.

Vermont: Disease first reported June 17 from Burlington. It is common locally around Burlington on garden and field beans. More prevalent than last year. The seed planted was very clean as most of it was of local origin.

Wisconsin: Disease occurring in small amounts in Portage County. Injury to cotyledons and leaves.

Rust caused by Uromyces appendiculatus.

The disease has been reported by collaborators in the following states: Alabama, Louisiana, Maine, New Mexico, New York, North Carolina, Virginia and West Virginia. In West Virginia the disease is reported as being very prevalent and fully as destructive as anthracnose.

Rust caused by Uromyces appendiculatus.

The disease has been reported by collaborators in the following states:

In New Mexico it is reported as being very prevalent in Chaves County. Most fields in that region are affected and some farmers will lose their entire crops through the ravages of the disease.

In Louisiana the disease is reported as being bad on pole beans and it prevented the development of navy beans in some cases.

In Alabama it was most severe on wax varieties.

In other states the amount of injury is small.

Stem Rots caused by Various Organisms.

In Alabama Sclerotium rolfsii is causing a good deal of damage on low lands.

In California stem rots, due principally to Rhizoctonia and Fusaria, are abundant.

In Florida stem rots occur everywhere in the state and are sometimes very serious.

In Louisiana and Michigan Rhizoctonia is said to be responsible for the dying of a great many plants.

In New York a root rot caused by Fusarium sp. is very serious this year as it has been for the past few years in nearly every bean field in the western New York bean-producing sections.

In New Hampshire Thielavia stem rot has been found, and in Vermont a Fusarium stem rot has recently been discovered. Some damage of this nature is being reported from Massachusetts.

Mosaic.

Mosaic is listed as occurring in Arkansas, California, Michigan, Minnesota and New York. It is said to be of little importance in all states except New York where it appears to be doing considerable damage.

Other Diseases.

In Arkansas a stem rot caused by Phoma sp. has been observed on one variety in one field where it was quite prevalent. Delaware is the only state reporting downy mildew caused by Phytophthora phaseoli. Nematodes are doing a great deal of damage to beans in Alabama this year as usual.

BARLEY

Leaf Rust caused by Puccinia simplex.

This rust has been reported as occurring in Minnesota, Virginia, Wisconsin and Wyoming this year.

Loose Smut caused by Ustilago nuda.

Reported from Idaho (1/3%); Michigan, Minnesota (in small amounts); New York (1/2 to 8% loss in individual fields); Pennsylvania, Vermont (very common); Wisconsin, Wyoming (1 to 2% in many fields).

Covered Smut caused by Ustilago hordei.

Reported from Michigan, New York (1/2 to 4% loss in individual fields); Pennsylvania, Vermont, Wisconsin and Wyoming (1 to 5% in many fields).

Stripe Disease caused by Helminthosporium gramineum.

Reported from Idaho (2 plants); Michigan, Minnesota (scattered amounts); Pennsylvania (noted at State College, prevalence unknown); Wisconsin "(1 to 36% in many fields, disease seems to be increasing in importance. Very limited number of fields in the valley sections are free from the disease. We are recommending soaking seed for 2 hours in formaldehyde solution at the rate of 1 pint to 30 gallons... --R. E. V.)"

Net Blotch Disease caused by Helminthosporium teres.

Reported from Michigan, Minnesota (moderate); Wisconsin (general).

Spot Blotch Disease.

Reported from Minnesota (slight).

Disease caused by Rhynchosporium graminicola.

Reported from Michigan, Minnesota (collected this year, not considered serious); Wisconsin (caused premature death of leaves in some fields); Idaho (not found this year but prevalent in 1915 and 1916 when it affected about 5% of the plants in some fields.)

CORN

Physoderma Disease caused by Physoderma zeae maydis.

This disease was first reported as occurring in the United States by J. T. Barrett from Illinois in August, 1912. As far as we know this is the

only report of its occurrence in that state. Recently it has put in its appearance in the southeast where it has increased rapidly and is apparently doing much damage, just how much is uncertain. It is now known to occur in the states of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi and Tennessee. Mr. W. H. Tisdale, of the Bureau of Plant Industry, is in the field working on the trouble. Indications are that the disease is spreading rapidly and no one knows how disastrous it may become. The present distribution is uncertain. The attention of the pathologists is drawn to Physoderma at this time in order that they may be on the lookout for it. The Plant Disease Survey Office has a limited amount of material and will be glad to send a specimen to those who request it. The Survey would like to receive notice of any new occurrence of the disease.

The following reports have been received from collaborators in states where the disease exists:

Alabama: First appearance in April at Auburn. The disease is everywhere present in the state, especially on bottom corn and is apparently increasing in amount. Corn grown on low land appears to be most affected. "I have just returned from a trip through the southern and central part of the state and find the Physoderma disease of corn is very common indeed. In fact I was able to find it in every corn field I visited. Mr. Williamson, of the Department of Agriculture, has just returned from the northern part of the state and he reports that he found it everywhere present.....
.....
In talking with one of our district agents yesterday he stated that he had observed this disease ten to thirteen years ago on bottom land. He stated that as far as he could see it caused no damage. Just how much damage does this Physoderma disease of corn cause? — G. L. P. "

Florida: First appearance May 16, observed by Sherbakoff and Tisdale. It is very common, but no definite data as to amount of damage. Apparently the disease is increasing in the state. It has been observed mostly on comparatively low land.

North Carolina: First appearance June 1 at West Raleigh, observed by Wolf and Tisdale. Wolf has visited several regions and found it everywhere present and increasing in amount in the state. No relation appears to exist between elevation and the amount of disease.

South Carolina: Disease first noted July 1 at Clemson College. Has been observed by everyone who has looked for it. Barre has found it in every section of the state and in every field examined. The amount of damage is considerable. Stalks in many fields are rendered entirely fruitless. No counts or accurate percentages are worked out but roughly there is a 25% loss in some fields. The disease is increasing in the state. There seems to be no relation between elevation and the amount of disease this season. Barre considers this one of the most serious diseases with which farmers in South Carolina have to contend.

Tennessee: First found in July occurring on southern border of state, Fayette County.

POTATOES.

Late Blight caused by Phytophthora infestans.

The cool and wet weather of May, June and July was favorable for the development of Phytophthora on potatoes. In the southern potato-growing states it has been very destructive, having become serious at about the time the early crop was maturing. Reports from Florida, Alabama and North Carolina show the disease to have been unusually severe on early potatoes. In some places the crop was reduced 50% while in a few fields there was a total loss.

Farther north the fungus is abundant at this time. In West Virginia it is stated that the disease is just getting well started but even now some fields are past redemption.

In the northeastern states the fungus appears to be widespread but has been checked by the dry and hot weather of the present month. Farther west little damage to the potato crop has been reported up to the present time.

On account of the prevalence of the fungus in the eastern part of the late potato belt, a serious development of the late blight may be expected provided the weather becomes favorable for the growth of the fungus.

The following more detailed information regarding the occurrence and prevalence of late blight has been sent in by collaborators.

Alabama: Late blight first appeared in April in Baldwin County. It was very bad in the Gulf Coast section where the crop is in some places reduced one-half.

Florida: Disease first noted April 2 at Hastings, definite records being received from three different counties and it was found in some cases that 50% of the potatoes were killed. In affected districts there was about 20% crop reduction in unsprayed fields.

Maryland: The disease was first observed August 1, in Garrett, Alleghany and Washington Counties. It is not prevalent as yet. The blight-infested region has been relatively dry during the past two weeks but there is a sufficient amount of the fungus to cause an epidemic if weather conditions should favor.

Massachusetts: Disease first reported July 25 from Marthas Vineyard. It is also doing much damage on the Island of Nantucket and along the coast as well as being generally scattered in other places. A general epidemic is looked for provided weather conditions favor.

Minnesota: Disease first noticed July 13 in St. Louis County. It has also been reported from the counties of Pine and Benton. At the present time however, the blight is not prevalent nor severe.

New Hampshire: The disease was first noticed July 28 in Merrimac County. It is not as yet seriously prevalent, being checked by dry weather but is more abundant than last year.

New Jersey: First noted about July 15 in northern half of state but very little damage is being done as yet.

New York: The disease was first reported June 20 from Suffolk County, Long Island. It has also appeared in the counties of Genesee, Tioga, Caroline, Chenango, Orange and Columbia. It is not well enough started yet to do much damage but there is a great possibility of the development of an epiphytotic either in the next ten days or two weeks.

North Carolina: Blight is reported as being very destructive to the early crop in this state. Some fields showed a total loss and one man is reported as losing 100 acres.

Ohio: Disease first discovered July 24 at Wooster, although present at least one week earlier. The infestation appears to be localized in Wayne County. The disease has been checked by the hot, dry weather.

South Carolina: Disease reported from several places in Horry County. No indication is given as to the amount of damage.

South Dakota: Very little of the disease has been found and in such small amounts as to be insignificant. Season very cool and backward.

Vermont: Disease first reported July 9 in the vicinity of Burlington where it appears to be common. It has not as yet caused much damage but may be found in a majority of the plots. Weather conditions have been very favorable at times but lately it has turned hot and dry. If the weather should become humid an epidemic is feared because of the widespread initial infection.

West Virginia: Disease first noted July 19 at Philippi and has also been reported from Randolph and Barbour Counties. The disease is very general and just getting under way in most fields but some are severely damaged. The weather has been warm with much rain. Prospects for a severe epidemic are very good as but little spraying is being done and that not carried on efficiently.

Wyoming: In this state the disease has been reported once as occurring in Fremont County. It appears to be of very little importance thus far.

Potash Hunger.

This disease has been reported from a large proportion of the eastern states where commercial fertilizers are used. Definite reports have been received from Delaware, Maryland, Massachusetts, New Jersey, New York and Virginia. In the latter state McClintock reports the disease to be very general throughout the tidewater section wherever potash or stable manure are omitted. First noted early in May. An average of 10% injury is estimated.

There is much to be learned about this disease which has recently put in its appearance. Any data that collaborators may be able to furnish regarding the correlation of its occurrence with such factors as soil type, soil treatment, elevation, etc., should be made public as soon as possible.

Rhizoctonia Injury caused by Rhizoctonia solani.

It is to be noticed that this year when weather conditions have been optimum for the normal and healthy growth of the potato plant that Rhizoctonia injury is not as frequent as usual, this in spite of the fact that a large amount of seed was planted this season that bore the sclerotia of the fungus. Reports received from the collaborators show the disease to be doing less damage than usual, or at least no more than is common. In Vermont the disease is reported as being very scarce. It is reported from practically all states from which replies regarding potato diseases have been received. The injury reported at this time is mostly in the form of lesions on sprouts.

Mosaic (Cause unknown).

This disease is reported as occurring scatteringly in the following states: Alabama, Delaware, Florida, Louisiana, Maryland, Massachusetts, Michigan, New Jersey, New York, New Hampshire, Vermont, Virginia, Wisconsin. In most of these states the disease appears to be doing very little damage but in Florida it is reported that there have been cases this season where it caused 30% loss. In New York State on Long Island the disease is quite severe. Early in the season it was reported that a number of Long Island farmers were plowing up their fields on account of the trouble. Collaborators list the varieties Green Mountain, Irish Cobbler and Bliss Triumph as the ones affected. In practically all cases the disease appeared on potatoes grown from northern seed.

Common Scab.

Reports have been received from some states where the early potato crop has been harvested that indicate the prevalence of common scab. In Louisiana the disease was very bad. In one parish one-third of the potatoes were sold for seconds and culls on account of the disease. In Alabama scab was severe in spots but it is stated that most potato growers are now treating their seed. In Virginia the disease is quite abundant on some farms, especially where stable manure is used.

Early Blight.

This disease has been reported as being prevalent in the following states: Alabama, Louisiana, Massachusetts, Minnesota, New Jersey, Ohio, Pennsylvania, Virginia and West Virginia. In the latter state it is said to be very destructive in several plots. In Virginia it is reported as coming late in the season on the spring crop. In Pennsylvania and West Virginia it appears to be quite destructive while in the other states it is only somewhat so.

Black Leg.

According to reports this disease is quite prevalent in the following states: Delaware, Michigan, Minnesota, New Hampshire, New York, Ohio, Penn-

sylvania, Virginia and Wisconsin. In some of these states a considerable amount of Canadian potato seed have been planted this past season and in a great many of these fields the disease is very abundant. In some fields the stand has been reduced one-half. In Wisconsin many fields were noted in different counties where there was a 5% loss. The disease appears to be traceable to northern grown seed.

Tip Burn.

Tip burn is reported as being very abundant in Minnesota, New Jersey, New Hampshire, New York and Ohio on late potatoes. The occurrence of the disease is doubtless related to the hot, dry period of late July.

Fusarium Wilt.

This disease is reported from Arkansas, Delaware, New Mexico, Pennsylvania, Tennessee, Vermont and Wyoming.

In New Mexico it was first noticed July 15 in Grant County. It appears to be more prevalent there this year than usual and is spreading each year. Torrence County, New Mexico, is almost free from potato diseases this season due largely to cooperative efforts along the lines of seed treatment and seed selection largely directed by the county agent. In Wyoming the disease at present is showing up throughout the state. One field showed 10% of affected plants.

Germination Troubles.

Weak germination, either by the production of spindling sprouts or secondary tubers, has been reported as being unusually prevalent this year. Definite reports have been received from Maryland, Michigan, Minnesota, New York and Vermont. This germination trouble seems to be related to the unfavorable weather conditions that existed last season during the time when the crop was maturing. In Vermont it is estimated that the crop will be cut from 5 to 10% on account of this trouble.

Sclerotium Wilt caused by Sclerotium rolfsii.

This disease has been very serious in Alabama and Louisiana this season. In Alabama it is considered to be one of the most important troubles occurring in the Gulf Coast section. It caused a dying of the vines and a stem-end rot of the tuber. At some of the loading stations in June a number of bags of potatoes were rejected and it was necessary to regrade a great many lots.

In Louisiana there is more trouble than usual on account of this disease because more potatoes are planted on alluvial soils where the fungus is more abundant.

Other Diseases.

Nematode injury is very severe in certain localities in Alabama.

A Phoma disease has been noted at Amherst, Mass., by pathologists at the Experiment Station.

Bacterial blight, caused by Bacillus solanacearum, has been reported from several places in North Carolina where it rotted the tubers in the ground.

D. C. Babcock in Ohio has collected a new leaf spot and roll which he ascribes to be due to Verticillium albo-atrum.

In Idaho Miss Willis has received specimens that showed dead spots in the pith and which in many ways resembles what is known as "streak disease."

RYE.

Questionaires regarding rye diseases were sent to the principal rye-producing states.

Smut caused by Urocystis occulta.

Michigan: Urocystis occulta has been collected from several places this season, doing no more than 1% damage. It was first collected July 14 at Grand Rapids.

Minnesota: Generally prevalent in small amounts on winter rye. First appearance June 8 in Ramsey County. Few control measures are practiced by growers.

New York: Only two correspondents have reported rye smut this year. First report July 16 from Livingston County.

Ohio: First appearance July 18 in Highland County.

Tennessee: Disease observed at Knoxville and Jackson.

Wisconsin: First appearance July 15 in Washara County.

Ergot caused by Claviceps purpurea.

Michigan: First appearance July 14 at Grand Rapids. Disease common this year, especially on volunteer rye. Its prevalence is probably the aftermath of the comparatively large amount of ergot which developed last year under similar favorable conditions. So far no loss to animals from ergot has been reported to the pathologist at the station.

Minnesota: First appearance July 17 from Anoka County. Common in rye fields but no very appreciable loss.

New York: Reported July 21 from Alleghany County where 20% of the heads were affected. Only report received up to this time.

Tennessee: One report from Newport, Tennessee.

Wisconsin: First appearance July 15 at Madison. Quite abundant this season but losses are difficult to estimate. In many fields nearly every head has one or more sclerotium.

WINTER WHEAT.

Bunt caused by Tilletia foetens, T. tritici.

The reports received indicate that this disease is about as prevalent as usual. In some states it seems to be generally spread through entire wheat-growing regions, in others more or less centralized in various places.

Delaware: The disease is occurring in about the same amount as last year and appears to be distributed all over the state. Manns estimates about 1% loss from the disease.

Idaho: A little of the disease occurs everywhere that wheat is grown although it may be possible that it is doing much greater damage in some localities than others. It appears that mountain valleys and irrigated regions where summer fallowing is not practised are practically free from smut. In the semi-arid regions, however, where summer fallowing is practised the greatest losses from the disease occur. Practically all Idaho farmers treat their wheat seed.

Maryland: In Cecil County some very bad cases have been observed. One field was found that showed 20% smutted heads. In other sections of the state however, particularly in Washington and Frederick Counties, the wheat is of good quality and practically free from bunt.

Michigan: The disease is extremely prevalent in the state this year. It is estimated by Coons that the wheat crop will be cut 5% short on account of this disease. Coons finds that in the variety Red Rock there is an average of 2% bunt this year. It appears that when this strain was originally sent out it was healthy but became diseased so that at present it is difficult to find a single unaffected Red Rock field.

New Mexico: The disease is about the same as usual and no wheat-growing region appears to be free from it.

New York: In New York reports have been received from disease correspondents in the field which showed that counts for percentages of disease have been made in 132 fields. From these figures it is found that there is an average of about 1% loss in the wheat-producing counties of New York. It appears that there is much need of extension work along the line of seed treatment as the seed for only 9 fields out of the 132 was treated. Most of the treated fields showed no smut.

North Carolina: Disease generally present in the Piedmont and mountainous sections.

Ohio: Disease about the same as last year and ocurring in spots all over the state.

Tennessee: Reports the occurrence of bunt.

Virginia: The disease seems rather generally prevalent as usual. Only one case of severe injury has been reported.

Bureau of Plant Industry: In a recent field trip Alden A. Potter visited wheat fields in Michigan, Kansas and Nebraska and found bunt to be rather generally distributed throughout these states. In the two latter states it was prevalent, doing approximately 1% damage. In Michigan Potter and Cochs had an opportunity to observe both Tilletia foetens and Tilletia tritici growing in the same fields. They made a rather close study of the symptoms of the two diseases and found enough difference in the pathological morphology to be able to distinguish the two. The differences were principally those of height and appearance of the spikelets.

H. B. Humphrey has recently received reports from the Pacific northwest stating that in eastern Washington and northern Oregon there appears to be little or no bunt in spring wheat but from 3% to 30% in winter wheat. In western Washington where the greater part of the seed is treated there is little or no bunt except in fields of untreated seed. In the wheat fields of Wisconsin Humphrey found practically no smut when he was there this season.

Loose Smut caused by Ustilago tritici.

Reports received regarding the prevalence of loose smut show that it is in about the same amounts as usual. Comparatively few reporters have attempted to estimate losses but some have done this quite satisfactorily.

Maryland: Temple estimates a 5% loss by actual count of from 5 to 1000 heads in each of several fields in four counties.

New York: There is approximately 1% damage, the figures being based on reports from about 30 plant disease correspondents.

Virginia: According to Fromme the disease is generally prevalent, causing from 5 to 10% loss.

Ohio: Disease reported more prevalent than usual.

South Carolina: More prevalent than usual.

Additional reports as to the occurrence of loose smut have been received from Delaware, Idaho, Michigan, Minnesota, North Carolina, Pennsylvania, Tennessee, West Virginia and Wisconsin.

Bureau of Plant Industry: A. A. Potter found the disease to be general in Nebraska and Kansas, doing a small amount of damage but in a few fields the amount of loose smut was found to be as high as 10%.

Scab caused by Fusarium culmorum.

Wheat scab seems to be especially prevalent and unusually severe this year, probably on account of the rainy season which preceded harvest.

Delaware: Disease is very common, there being one or more percent loss.

Maryland: It is reported as occurring on wheat to the extent of 3 to 5%.

Michigan: The disease has been observed on wheat, barley and rye, causing 10% loss in some cases. Not yet observed on oats in this state.

Minnesota: It has been reported from five counties on wheat but definite data as to the amount of damage is not available.

New York: The disease has been reported five times this season. This indicates it to be much more severe than usual in the state.

Ohio: Disease occurs generally on wheat and locally about Wooster on oats and rye. Infected heads range from 1 to 28% by actual count.

Pennsylvania: There appears to be a decided increase of Fusarium culmorum on wheat and rye. Kern adds that this disease has not been considered prevalent in years past.

West Virginia: There is a considerable amount of the trouble but Giddings does not consider it to be causing a great amount of damage.

Wisconsin: The disease is reported to be limited in its occurrence.

Bureau of Plant Industry: Dr. H. B. Humphrey reports the disease as occurring also in Indiana and Illinois on wheat. In the latter state it is doing a great deal of damage to oats and rye also. In some sections 10% of the wheat is affected.

Leaf Rust caused by Puccinia triticina.

In answer to the question as to whether or not this was considered to be a disease of economic importance in the state, collaborators in the following states have replied im the affirmative: Maryland, North Carolina, Pennsylvania, South Carolina, and Tennessee.

Maryland: Temple states that in Maryland there are many cases where all the foliage dies prematurely, making the heads light and chaffy.

South Carolina: Barre adds that it was present all winter and when the warm spring weather set in the rust became very severe. In the state

it is stated that the disease frequently destroys all the leaves before the grain is matured as it did in many cases this season.

Tennessee: Essary considers leaf rust to be of very great economic importance.

Other collaborators either consider it to be of no importance or at least not doing much if any damage.

Yellow Stripe Rust caused by Puccinia glumarum.

According to Dr. H. B. Humphrey a new eastern limit has been established for this rust. Heretofore the eastern limit has been a north and south line passing through Sheridan, Wyoming. This season a serious outbreak has been found on barley in the Black Hills of South Dakota. The only other reports received thus far this year of the occurrence of this disease have been from the Williamette Valley, Oregon, Oregon River, Oregon, Sherman County, Oregon, and Moscow, Idaho. In the latter place it was found by Miss M. A. Willis. She says "I have searched diligently for this disease in the vicinity of Moscow but have not found any on wheat, rye, or barley. I found it on one bunch of Hordeum jubatum. The largest leaves on these plants showed disease. It evidently had lived over winter on it. It has since spread to one other plant of this species. Between the grasshoppers last fall and the severe winter this rust has been almost killed out in this section."

Other Diseases of Wheat.

Black stem rust caused by Puccinia graminis has been reported as causing severe losses in many Michigan fields. Farmers in one county claim 15% loss. First reported from the Michigan Agricultural College May 20. The disease is also reported as causing considerable damage in Arkansas, Pennsylvania and Wisconsin.

Anthracnose caused by Colletotrichum cereale is reported from Ohio.

EXTRACTS FROM GENERAL REPORTS.

APPLE

Scab is reported as being unusually bad in Wisconsin, Ohio, Pennsylvania and New York. A large amount of the fungus over-wintering on the old leaves together with the wet spring made conditions favorable for initial infection.

Leaf spot caused by Physalospora cydoniae developed in excessive amounts in Ohio during July, and in Virginia it is very prevalent causing heavy defoliation in some orchards.

"Cedar rust has been unusually severe in the Upper Valley section of Virginia. Light infections were found in many places where cedars were thought to have been eradicated, but in places where no cedars have been removed the infections were so numerous that serious defoliation and loss seems inevita-

ble. The infection apparently took place very largely in one sporidial shower rather late in the season about June 1." F. D. F.

CHERRY AND PLUM.

Shot hole is unusually bad this year all over the state of Wisconsin where it started about July 1. Selby in Ohio and Coons in Michigan also report an excessive amount of this disease.

PEACH

Pennsylvania reports a considerable reduction in the crop throughout the state because of heavy blossom infection by Sclerotinia cinerea. Brown rot is also more destructive than usual on peaches in South Carolina. Scab is causing serious losses in every peach orchard in the latter state.

TOMATO

Florida: Members of the Office of Cotton and Truck Investigations have had occasion to study tomato diseases in Florida in the months of February, March and April. They have contributed the following notes:

"Alternaria solani on seedlings, foliage of large plants, and fruit. Observed at Miami and Bradentown, Florida. Extent of injury (approximation) 15-20%.

Phoma destructiva on foliage of large plants and fruit at Miami, Florida. Extent of injury about 5 - 10%.

Damping-off of seedlings in tomato seed beds due to Rhizoctonia. Observed at Miami and western coast of Florida. Extent of injury approximately 2 - 5%.

Fusarium wilt observed at Miami and all southern points. Extent of injury about 5%, with the exception of one small field where the injury was about 30%.

Mosaic observed on foliage of large plants at Miami and other southern points. Widely distributed.

Cladosporium fulvum observed in one large field in southern Florida, causing about 30% injury, leaves turning yellow and dropping. Yield from this field as compared with adjoining field reduced about one-third."

New Mexico: "The most important disease in New Mexico at present is the Fusarium wilt of tomato. This wilt has been reported so far from Valencia, Curry, Dona Ana and Grant Counties. In Dona Ana County about 80% of the tomato crop is affected and the estimated loss will probably amount to about 90% of the crop." F. L. W.

A new tomato disease somewhat like Fusarium wilt is serious in New Mexico and is being investigated.

South Carolina: "Reports indicate that bacterial wilt of tomato is more prevalent and destructive than usual, occurring throughout the state and in many cases destroying entire crop." H. W. B.